DOCUMENT RESUME

ED 159 627 CS 004 358

AUTHOR Miller, John W.; Marshall, Frances W.
TITLE Teachers' Abilities to Judge the Difficulty of Reading Materials.
PUB DATE May 78
NOTE 17p.; Paper presented at the Annual Meeting of the International Reading Association (23rd, Houston, Texas, May 1-5, 1978) ; Best copy available

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Elementary Education; *Readability; *Reading Instruction; Reading Level; *Reading Materials; *Reading Material Selection; *Reading Research; Teacher Education; *Teaching Skills

ABSTRACT

To determine whether experienced reading teachers are better able than individuals with little training and teaching experience to make judgments about the difficulty level of learning materials and to discover if they differ in evaluating criteria for making such judgments, a study was conducted involving 100 subjects. The subjects were placed into four groups reflecting a continuum of training and teaching experience from undergraduate students to reading specialists, and were asked to evaluate six reading passages representing difficulty levels from grades one through six. A questionnaire was also administered to determine the importance of three criteria for judging difficulty level. The results indicated that there was no difference between the judgmental ability of experienced reading teachers and undergraduates with no training or teaching experience. The questionnaire results suggested that experienced teachers simply placed a high value on all three criteria for judging difficulty levels and displayed no differential strategy for judging based on the importance of any one factor. These findings indicate that teachers may have problems making the critical match between student and reading material and that teacher training programs are inadequate in this area and need to be changed. (FL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED159627

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

BEST COPY AVAILABLE

TEACHERS' ABILITIES TO JUDGE THE DIFFICULTY OF READING MATERIALS

John W. Miller
Wichita State University
Wichita, Kansas

Frances W. Marshall
Kansas USD #465
Winfield, Kansas

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

John W. Miller
Frances W. Marshall

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

CS004358

Teachers' Abilities to Judge the Difficulty of Reading Materials

Examines the abilities of undergraduate students, classroom teachers, and reading specialists to judge the difficulty levels of children's reading materials and the criteria used to make the judgments. Four groups of subjects, reflecting a continuum of training in reading and teaching experience, estimated the difficulty level of six reading passages. Scores were recorded for number of correct judgments and difference between judged difficulty level and "actual" difficulty level. Subjects also completed a survey indicating the importance placed on three criteria for judging difficulty. Results on both measures of accuracy indicated that trained and experienced teachers of reading were not more able to judge difficulty than were undergraduates with no training or experience. Differences were observed in the criteria used to make judgments. Instructional consequences of teachers' inabilities to make these judgments are cited, and suggestions for improving judgmental ability are made.

Teachers' Abilities to Judge the Difficulty of Reading Materials

One issue confronting any teacher of reading is the critical problem of the "match." Placing students into an appropriate difficulty level of reading material seems to be an important antecedent of effective reading instruction. Chall and Feldman (1966) explain that teachers' abilities to select appropriate reading materials for children vary and that the accuracy of these selections has a definite effect on achievement.

How well Do Teachers Judge the Difficulty level of Materials

Studies of teachers' abilities to assess the difficulty level of reading materials have been conducted, but the conclusions from these studies appear to be somewhat mixed. Reports by Chall (1958) and Carver (1974) indicate that teacher ratings of materials tend to be quite accurate and reliable. On the other hand Rakes (1973) examined the abilities of 43 randomly selected Adult Basic Education (ABE) teachers to assess the reading difficulty levels of 29 frequently used ABE texts compared to a criterion established by readability formulae. He concluded that "there was no evidence to indicate that subjective ABE teachers estimates of readability were accurate means for readability assessment."

Jorgenson (1975) conducted a study on teachers' abilities to judge the difficulty of reading materials. The judgments from this sample of 84 elementary teachers were compared to a criterion of publisher placement in a leveled set of informal reading inventories from preprimer to fourth grade. In general the teachers' judgments were not particularly accurate. For example, only 21

of the teachers accurately judged the fourth grade passage. While 33 teachers felt that the fourth grade passage was sixth grade difficulty level or higher. Jorgenson attributed what little accuracy was found to teacher expectancy based on the reading ability of the students in their own classroom. He also noted that teacher experience was potentially one significant factor affecting accuracy of judgment.

Teachers' abilities to place students into materials appropriate to their reading ability are at least somewhat suspect based upon past evidence. Even if the teacher is able to accurately assess the students' reading level, he or she must still be able to assess the difficulty level of the materials to be read in order to make the appropriate match. Finding the appropriate level of reading materials for any student is confounded by at least three problems. First, many studies, such as those reported by Roe (1970) and Rodenborn and Washburn (1974), suggest that the material in leveled texts often differs significantly from estimates of difficulty based on readability formulae and other measures. This indicates that even if a teacher is able to make an accurate assessment of a student's reading ability and places a student into the corresponding level of a basal reader, the critical match may not be made. Second, much of the reading required of students is not done from leveled texts. Sources such as newspapers, trade books, magazines, and comic books do not have predetermined readability levels. In fact, most of the functional and recreational reading done by children is from non-leveled sources. Therefore, the teacher must necessarily make judgments about the difficulty level of many reading materials.

Third, in trying to make judgments about the difficulty level of reading materials teachers occasionally use readability formulae. However, the formulae are generally too time consuming for use by the teacher, who is confronted with the need to make numerous judgments about reading material daily, and the formulae themselves often yield differing results. McLeod (1962) Makes (1973), and Guidry and Knight (1976) represent three of the numerous studies in which the inconsistency of the formulae is noted.

Teachers need to make a great number of relatively accurate judgments about the difficulty level of reading materials. The ability to make these judgments is necessitated by inconsistent placement of materials by publishers in leveled texts, the great amount of reading done outside of leveled texts, the time consuming nature of readability formulae, and the lack of consistency in the results of such formulae. Unfortunately, the ability of teachers to make judgments of difficulty is somewhat suspect.

What factors affect a teacher's ability to judge materials

Based on results from the previously cited Jorgenson (1975) study, it seems both possible and plausible that teaching experience has an effect on the teacher's ability to accurately judge reading materials and thus make the critical match between student and material. Another factor which may affect the teacher's ability to make judgments about reading material is the amount of training the teacher has had in the area of reading instruction. Hopefully the teacher with more training in reading will be more knowledgeable about reading and thus will be more able to judge the difficulty level of materials. While this relationship between training and knowledge cannot be assumed to be absolute, results of studies

reported by Kingston, Brosier, and Hsu (1975) and Koenke (1975) indicate that the generalization does hold. In the Kingston study undergraduate elementary education majors without reading training, undergraduate elementary education majors with reading training, elementary classroom teachers, and reading specialists differed significantly in their performances on the Inventory of Teacher Knowledge of Reading (Artley & Hardin, 1971). The mean scores of undergraduates with reading training and elementary classroom teachers were very similar (54.45 and 54.11) respectively; but undergraduates without training scored significantly ($p < .001$) lower, while reading specialists scored significantly ($p < .001$) higher. Koenke (1975) found similar results using the same instrument to assess the knowledge of undergraduates and experienced teachers.

Considering the suggested relationship between training in reading, knowledge about reading, and the ability to judge the difficulty of reading materials; and considering that there appears to be some relationship between amount of teaching experience and the ability to judge the difficulty levels of reading material; the present study was conducted to answer two questions:

1. Do individuals with more training in teaching reading and more experience in teaching reading make more accurate judgments about the difficulty level of materials than do individuals with less training and experience.
2. Do individuals with more reading training and teaching experience differ from those with less training and experience in the criteria used for making judgments

about the difficulty of reading materials.

METHOD

Materials

Six reading passages were selected to represent difficulty levels from grades one through six. A passage selected as "representative" of a grade level met three criteria. First, it was found in a leveled basal reader text. Second, the Fry (1968) readability estimate agreed with the publisher placement. Third, the Spache (1953) readability formula for passages at first through third grade level or the Dale-Chall (1948) for passages at fourth through sixth grade level agreed with both the Fry estimate and publisher placement. Each of the six passages were duplicated and assembled in booklets which were counterbalanced to control the effect of order of presentation.

A fifteen item questionnaire was also developd. It contained items pertaining to the importance of various criteria for judging difficulty of reading materials. The fifteen items were constructed to reflect three factors:

1. The difficulty of individual words in the passage.
2. The syntactic complexity of the passage.
3. General stylistic patterns of the author.

Each of the three subsets contained five items, and considering the limited number of items the subset reliabilities were adequate ($r = .67$ to $r = .81$). Subject responses were scored on a lickert scale format. For example:

The number of complex clauses in the passages was.

1	2	3	4	5
Not considered	Of limited value	Of some value	A valuable consideration	A very valuable consideration

After the subjects had rated the passages and assigned a reading level to each passage, they were given the questionnaire. Both the passages and the questionnaire were administered to the subjects in groups. All work was completed during the administration session.

Sample

Subjects (n = 100) were selected and placed into one of four groups (n = 25). Group I was comprised of undergraduate students having no training in elementary education and no teaching experience. Group II was comprised of certified elementary school teachers having one three-hour reading methods course and one to three years of teaching experience. Group III was comprised of certified elementary school teachers having one three-hour reading methods course and four or more years of teaching experience. Group IV was comprised of elementary reading specialists having twelve or more graduate hours of reading training and more than two years of classroom teaching experience. It was felt that these grouping patterns would reflect a combination of the reading training and teaching experience variables.

Data Analysis

Two different dependent measures for accuracy of judgment were computed. The first measure was the number of correct or "on-level", judgments made, with a total possible score of six correct judgments for each subject. A one-way ANOVA by groups was computed for this measure. The second measure was the total difference between the

judged difficulty level and the actual difficulty level for all six passages. This measure was viewed as more "forgiving" than the first because a "near miss" was differentiated from a response which was "way-off". For example a third grade passage judged as a fourth grade passage resulted in a score of one, while a third grade paragraph judged as sixth resulted in a score of three. On this measure a low score reflected greater accuracy. A one-way ANOVA by groups was also computed for this measure. Responses on each of the three subsets from the questionnaire were analyzed with one-way ANOVA's by groups.

RESULTS

The ANOVA for the number of correct judgments yielded no significant differences ($F = .43$, $df = 3, 96$) in the mean number of correct responses for the four groups. An examination of the means presented in table one under "factor one" indicates that there was very little difference between the mean number of correct judgments

- - - - - - - - - - - - - - - -
Insert Table one about here
- - - - - - - - - - - - - - - -

for any of the groups. Group I, undergraduate students with no training or teaching experience, were the most accurate judges ($\bar{X} = 2.40$); while Group III, classroom teachers with four or more years experience, were the least accurate judges ($\bar{X} = 2.04$).

Results from the ANOVA on difference scores between the judged difficulty level and actual difficulty level of the paragraphs also yielded no significant differences ($F = .15$, $df = 3, 96$) between the ability groups. Once again, there was extremely little actual difference in the mean scores for the four groups. Group II,

classroom teachers with three or less years of teaching experience were the most accurate judges using this factor ($\bar{X}$ = 4.80); while Group III was again the least accurate ($\bar{X}$ = 5.16).

Table two contains the means and standard deviations used to compute the ANOVAS for the three subtest scores on the questionnaire. The difference in the four group means on subset one, the importance

- - - - - - - - - - - - - - - - -
Insert table two about here
- - - - - - - - - - - - - - - - -

of the difficulty of individual words, was not significant (p .05, F = 2.51, df = 3,96). The difference in the four group means on subset two, the importance of the syntactic complexity, was significant ($p < .05$, F = 3.65, df = 3,96). A Newman-Keulls analysis indicated that Group I viewed syntactic complexity as significantly ($p < .05$) less important than did group IV ($\bar{X}_I$ = 13.96, $\bar{X}_{IV}$ = 16.68). The difference in the four group means on subset three, the importance of general stylistic patterns of the author, was also significant ($p < .01$, F = 4.54, df = 3,96). A Newman-Keulls analysis indicated that Group IV viewed author's general style as significantly ($p < .05$) more important than did the other three groups.

CONCLUSIONS AND IMPLICATIONS

Results pertaining to accuracy of reading difficulty judgments are discouraging. It is disconcerting to note that there was no difference between the judgmental ability of experienced reading teachers with 12 credit hours of graduate training and undergraduate students with no reading training or teaching experience. This lack of difference was demonstrated in both the number of correct judgments measure and the degree of difference between judged level

and actual level measure. It may be concluded from the present data that the combination of years of teaching experience and course work in reading instruction did not have an observable effect on the ability to estimate the difficulty levels of children's reading material. These results tend to support previous findings of Russell and Merritt (1951), Jongsma (1972), Rakes (1973), and Jorgenson (1975).

There is little solace found in the results from the questionnaire. Although there were significant differences in the importance placed on two of the three criteria for judging difficulty these differences must be interpreted cautiously. The means in table three indicate that experienced teachers and reading specialists simply placed higher values on all the factors than did less experienced teachers and undergraduate students. In effect there was no differential strategy applied for judging based on the importance of any one of the factors. This is particularly evident in that the differences in perceived degrees of importance did not translate into any differences in actual judgmental ability. From the results of this study it appears that teachers may have a great deal of difficulty making the critical match between student and reading material due to a lack of ability to estimate the difficulty level of materials. This problem would persist even if the teachers had accurate information available about student ability. These findings raise even more concern in light of two previously cited factors: the inconsistenty of leveled texts in terms of difficulty, and the fact that much of the reading done by students is not from leveled texts. Therefore, teachers inability to make these

judgments becomes all the more critical.

Considering the evidence (Kingston, et. al., 1975 and Feonke, 1975) that individuals with more training in reading are more knowledgable about reading, it would appear that this knowledge did not facilitate the ability to judge the difficulty of reading materials for the subjects in the present study. It is possible to infer from this that the additional training in reading received by group IV, and to a lesser degree groups II and III, did not prepare these teachers to judge difficulty levels of reading material. If, as is suggested by Chall and Feldman (1966), the ability of the teacher to make these judgments is important to student achievement then it would appear that some modification in teacher training would be helpful.

It is our contention that training in estimating difficulty levels of reading materials is deficient in reading training programs. We feel the training that does exist generally centers on the use of readability formulae. It is doubtful that teachers can practically transfer this skill to the applied situation of making numerous judgments of difficulty on a regular basis. Two suggestions for modification in teacher training programs would seem helpful. First, teachers need to become familiar with factors which <u>influence</u> difficulty rather than with formulae that <u>estimate</u> difficulty. Learning to recognize differences in vocabulary, sentence structure, idea density and author style, would seem to facilitate this judgmental ability. Second, the approach is to estimating reading difficulty reported by Singer (1975) and Carver (1976) might prove useful. These techniques involve a rapid comparison of a passage of unknown

difficulty to a set of passages at specified difficulty levels. These techniques hold particular promise, because they are both quick enough for teachers to use and they seem to build a "model" of varying difficulty levels in the teacher's mind.

Teachers need to improve their ability to estimate the difficulty level of reading materials. This ability should be fostered in both preservice and inservice reading training. It is hoped that teachers will be better able to match students to appropriate learning materials if they are able to make judgments about the difficulty of the materials children read.

Table one: Means and Standard Deviations for number of correct judgments (factor one) and for difference scores between judgments and actual difficulty levels (factor two).

	factor one		factor two	
	$\bar{X}$	SD	$\bar{X}$	SD
Group I	2.40	1.35	5.16	2.48
Group II	2.12	1.27	4.80	2.12
Group III	2.04	1.37	5.12	2.18
Group IV	2.32	1.15	4.88	2.28

Table two: Means and standard deviations for each of the three subsets of questionnaire items

	Individual Word		Syntax		Author Style	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Group I	16.48	3.16	13.96	3.12	17.04	3.54
Group II	18.12	3.28	14.92	3.09	16.08	3.48
Group III	18.12	2.65	15.56	2.57	17.84	3.12
Group IV	18.56	2.40	16.68	3.13	19.44	3.19

References

Artley, A. S., & Hardin, V. B. Inventory of Teacher Knowledge of Reading. Columbia, Missouri: Lucas Brothers Publishers, 1971.

Carver, R. P. Improving reading comprehension: Measuring Readability. Final Report #N00014-72-C-0240 Office of Naval Research, Silver Spring, MD, 1974

Carver, R. P. Measuring prose difficulty using the Rauding Scale. Reading Research Quarterly, 1976, 11, 660-85.

Chall, J. S. Readability: An appraisal of research and application. Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1958.

Chall, J., & Feldmann, S. First grade reading: an analysis of the interactions of professed methods, teacher implementation and child background. Reading Teacher, 1966, 19, 569-575.

Dale, E., & Chall, I. S. A formula for predicting readability. Educational Research Bulletin, 1948, 27, 11-20, 37-54.

Fry, E. A. A readability formula that saves time. Journal of Reading II, 1968, 7, 513-516.

Guidry, Loyd, J., & Knight, D. Frances. Comparative readability: four formulas and newbery books. Journal of Reading, April 1976, 19, 552-556.

Jongsma, E. A. The difficulty of children's books: Librarians' judgements versus formula estimates. Elementary English, Jan., 1972, 49.

Jorgenson, G. W. An Analysis of Teacher Judgments of Reading Level. American Educational Research Journal, Winter 1975, 12, 1, 67-75.

Kingston, A. J., Brosier, G. F., & Hsu, Y. The inventory of teacher knowledge of reading - a validation. The Reading Teacher, November 1975, 29, 133-136.

Koenke, K. Teacher Knowledge About Reading. A paper presented at the National Reading Conference, St. Petersburg, Florida, 1975.

McLeod, J. The estimation of readability of books of low difficulty. British J. Psychol., 1962, 32, 112-118.

Rakes, T. A. A comparative readability study of materials used to teach adults to read. Adult Education, 1973, 23-3.

Rodenborn, L. V., and Washburn, E. Some Implications of the New Basal Readers. Elementary English, Sept., 1974, 51, 885-888.

Roe, B. Readability of elementary school textbooks. Journal of the Reading Specialist, May, 1970.

Russell, D. H., & Merrill, A. F. Children's Librarians Rate the Difficulty of Well Known Children's Books. Elementary English, 1951, 28, 263-268.

Singer, H. The seer technique: a non-computational procedure for quickly estimating readability level. Journal of Reading Behavior, Fall 1975, 7, 255-267.

Spache, G. A New Readability Formula for Primary Grade Reading Materials. Elementary School Journal. 1953, 55, 410-413.